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AUTHOR Mac Iver, Douglas J.; Epstein, Joyce L.
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ABSTRACT

Data from a national survey of principals in public schools with a 7th grade were used in this study of schools that serve disadvantaged, advantaged, and other populations. Differences in the schools' course-taking opportunities, organizational structures, extracurricular programs, remedial activities, instructional approaches, staffing needs, and use of responsive practices were studied. Effects of middle grades practices on course-taking opportunities were also examined in an effort to gain insight into the ways in which learning opportunities can be expanded through school restructuring. Findings indicate that schools that serve disadvantaged young adolescents are as likely as other schools to offer students substantial instruction in basic academic subjects, but are less likely to offer extensive remedial programs, advanced courses, or instructional methods that promote active or higher-order learning. Schools for the disadvantaged are less likely than other schools to offer a rich array of exploratory courses, "minicourses," or extracurricular activities for students, but are equally likely to use responsive practices in the middle grades. Schools with a high proportion of minority students are less likely to offer instruction for active learning, higher-order thinking, or enriched electives. (Author/RH)

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THE JOHNS HOPKINS UNIVERSITY

How Equal Are Opportunities for Learning in Disadvantaged and Advantaged Middle Grades Schools?

Douglas J. Mac Iver

and

Joyce L. Epstein

Report No. 7

July 1990

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Center for Research on Effective Schooling for Disadvantaged Students
The Johns Hopkins University
3505 North Charles Street
Baltimore, Maryland 21218

The Center

The mission of the Center for Research on Effective Schooling for Disadvantaged Students (CDS) is to significantly improve the education of disadvantaged students at each level of schooling through new knowledge and practices produced by thorough scientific study and evaluation. The Center conducts its research in four program areas: The Early and Elementary Education Program, The Middle Grades and High Schools Program, the Language Minority Program, and the School, Family, and Community Connections Program.

The Early and Elementary Education Program

This program is working to develop, evaluate, and disseminate instructional programs capable of bringing disadvantaged students to high levels of achievement, particularly in the fundamental areas of reading, writing, and mathematics. The goal is to expand the range of effective alternatives which schools may use under Chapter 1 and other compensatory education funding and to study issues of direct relevance to federal, state, and local policy on education of disadvantaged students.

The Middle Grades and High Schools Program

This program is conducting research syntheses, survey analyses, and filed studies in middle and high schools. The three types of projects move from basic research to useful practice. Syntheses compile and analyze existing knowledge about effective education of disadvantaged students. Survey analyses identify and describe current programs, practices, and trends in middle and high schools, and allow studies of their effects. Field studies are conducted in collaboration with school staffs to develop and evaluated effective programs and practices.

The Language Minority Program

This program represents a collaborative effort. The University of California at Santa Barbara is focusing on the education of Mexican-American students in California and Texas; studies of dropout among children of immigrants are being conducted at Johns Hopkins, and evaluations of learning strategies in schools serving Navajo, Cherokee, and Lumdee Indians are being conducted by the University of Northern Arizona. The goal of the program is to identify, develop, and evaluate effective programs for disadvantaged Hispanic, American Indian, Southeast Asian, and other language minority children.

The School, Family, and Community Connections Program

This program is focusing on the key connections between schools and families and between schools and communities to build better educational programs for disadvantaged children and youth. Initial work is seeking to provide a research base concerning the most effective ways for schools to interact with and assist parents of disadvantaged students and interact with the community to produce effective community involvement.

Abstract

This study analyzes and compares the learning opportunities that are offered to students in middle grades schools that serve predominantly disadvantaged, advantaged, and other populations. Using data from a national survey of principals in public schools that include grade 7, the analyses examine how schools that serve different populations differ in their course-taking opportunities, organizational structures, extra-curricular programs, remedial activities, instructional approaches, staffing needs, and use of responsive practices. Further, to gain insight into how learning opportunities can be expanded through school restructuring, the effects of middle grades practices on course-taking opportunities are examined. The findings include: (1) Schools that serve disadvantaged young adolescents are as likely as other schools to offer their students substantial instruction in basic academic subjects but are less likely to offer extensive remedial programs, advanced courses, or instructional methods that promote active or higher-order learning. (2) Schools for the disadvantaged are less likely than other schools to offer a rich array of exploratory or minicourses or extra-curricular activities for all students but are as likely as other schools to use certain responsive practices in the middle grades (e.g., cooperative learning, interdisciplinary teaming, and group advisory periods). (3) Schools that contain a high proportion of minority students, regardless of students' overall level of disadvantage on achievement and economic-related risk factors, are less likely to offer instruction for active learning, higher-order thinking, or enriched electives. To the limited degree that schools for the disadvantaged and other schools have "equal resources and opportunities" on some dimensions, the results raise the questions of whether this equity is enough to ameliorate the learning and motivation problems of educationally disadvantaged students.

Introduction

About one-third of our nation's children are educationally disadvantaged and projections for the next few decades suggest that there will be a substantial increase in the number and proportion of disadvantaged youth in the U.S. (Pallas, Natriello, & McDill, 1989). The current size and expected growth of the population of disadvantaged youth make it clear that the effective education of disadvantaged young adolescents will be an important issue for middle grades educators and for researchers who study school organization and early adolescence.

For many years, the middle grades were the "forgotten years" (Lipsitz, 1980). Most attention was given in practice to improving early childhood programs, reforming high schools, and reducing the number of high school dropouts. Research followed suit by studying mainly the organization and effects of schooling in the elementary and high school grades. Over the past decade, however, new research, policies, and innovative practices have spotlighted the middle grades as a critical period of schooling and as a pivotal connector between the elementary and high school grades for determining student success or failure in school. Research has increased knowledge on the aspects of middle grades education that are responsive to the developmental needs of early adolescents (Eccles & Midgley, 1989); that may prevent serious problems in adjustment and personal development (Simmons & Blyth, 1987); and that provide balanced programs that promote high achievement and positive attitudes (McPartland,1987).

Recent national surveys have documented present practices and likely trends for middle grades education (Alexander & McEwin, 1989; Cawelti, 1989; Epstein & Mac Iver, in press). In particular, the large sample and in-depth questions of the survey conducted by the Johns Hopkins Middle Grades Program provides a comprehensive account of whether and how middle grades reform has progressed in schools that serve early adolescents. This survey shows, for example, that there is wide variation in practices within and between grade organizations. Early adolescents in the U.S. are not offered the same courses, instructional approaches, or responsive classroom practices and supportive interactions with teachers (Becker, 1990; Braddock, 1990; Epstein, 1990; Epstein & Mac Iver, in press; Mac Iver & Epstein, 1990; Mac Iver, 1990; McPartland, 1990).

Most prior research focuses on the organization of middle grades schools in general. As a result, we do not have a clear idea of the status of education in schools that serve different populations. There is reason to believe that the curriculum and instructional practices in middle grades schools that serve disadvantaged students differ from programs in other schools in ways that limit student motivation, positive attitudes, and achievement (Fleming, 1990). For example, disadvantaged students often receive different and less interesting learning materials than other students (Davidson, 1990a). Similarly, disadvantaged students are less often offered advanced or accelerated classes or opportunities to develop higher-order reasoning, thinking, and comprehension skills (Becker, 1989).

Disadvantaged students have all of the needs and problems of other early adolescents, plus the extra burdens created by educational weakness or failure. For example, the basic need to feel competent is complicated by disadvantaged students' needs for remedial instruction in basic skills in schools that do not make it easy to get or accept remediation. The strong need for peer support and conformity of early adolescents is complicated for disadvantaged students by limited peer support for positive attitudes toward school and learning. The general need for adult support and guidance is obstructed when educators label and separate disadvantaged students in negative ways, or set low expectations for success (Oakes, 1985; Mitchell, 1989); or diminish students' self-confidence and commitment to schooling (Maryland Task Force on the Middle Learning Years, 1990); or ignore them in favor of advantaged students and faster learners (Braddock & McPartland, 1990).

It is generally agreed that a young adolescent's motivation to learn is maximized by instructional programs that stress learning by doing, active applications of facts and skills, and interaction with other students. But schools for disadvantaged students may see active learning as a threat to order, substituting instead passive listening to lectures and drill-and-practice activities. Hands-on, active learning methods may be least used with the very students who most need the motivational boosts for increased achievement that these methods provide.

This paper examines and compares the curriculum and instruction in public middle grades schools in the U.S. that serve predominantly disadvantaged, advantaged, and other populations. The analyses provide a snapshot of the learning opportunities in the different types of schools.

Method

The schools in the study are a probability sample of public schools in the United States that have 7th-grade students. From the approximately 25,000 public schools that serve regular 7th-grade students, 2,000 schools were sampled with probabilities proportional to each school's enrollment per grade level as reported by Quality Education Data, Inc. in 1988. In addition, two subuniverses of schools were over-sampled: schools that serve both elementary and middle grades in metropolitan areas and schools in districts with substantial rates of poverty (i.e., Orshansky index at or above 25). Approximately 200 of each type were added to the sample, bringing the total sample size to 2,400.

In the spring of 1988, the Johns Hopkins Center for Research on Elementary and Middle Schools (CREMS) sent survey forms by mail to the principals of the 2,400 schools in the sample. A total of 1,753 (73%) of the principals provided information on their school for this study, including 1,344 who returned surveys by mail and 409 who completed shorter telephone interviews. Weighting the telephone interview responses to account for similar non-responding schools that were not followed up by telephone brings the weighted response rate to 93% for the items that were common to the mail and telephone surveys.

In data analyses, each school was assigned a "weight" that was the inverse of its probability of selection in order to return the sample to an equal probability (representative) sample of schools. Three cases had weights greater than 19; their weights were 48, 58 and 73. These cases represent schools having five or fewer students per grade level. The atypically large weights assigned to these schools reflect the low probability of selection for schools containing only 1 to 5 seventh-graders. Because we deemed it unreasonable to have any school "stand-in" for 48 or more of its peer schools in the analyses, these three cases were each assigned a revised weight of 19. Thus, in our analyses, schools that have extraordinarily small enrollments per grade level are underrepresented.

Classifying Schools

To compare the curriculum, instruction, programs, and practices in middle grades schools that serve large proportions of disadvantaged students with those in schools that serve more advantaged populations, it was necessary to classify each school's population as *disadvantaged*, *regular*, or *advantaged*.

Four measures were used in deciding which schools should be classified as disadvantaged: 1) the average ability of students upon entry to the school, 2) the estimated percentage of students who will probably not graduate from high school, 3) the percentage of students whose parents are "on welfare or not regularly employed," and 4) a Disadvantage Composite score that reflects a school's mean z-score across four measures (the three measures listed above plus a community poverty indicator, the percent of the school district's families under the poverty level in 1980.)

Specifically, a school was categorized as disadvantaged if the principal rated the average academic ability of students when they enter the school as "considerably below the national norm" or, the percent of students who will probably not graduate from high school (according to principals' estimates) is 1.25 standard deviations or more above the national average or, the percentage of students whose parents are on welfare or not regularly employed is 1.25 standard deviations or more above the national average. These rigorous criteria were selected to ensure that only those schools serving the truly disadvantaged would be so classified. For each criterion listed above, fewer than 10% of the schools qualified as disadvantaged. About 14% of the schools met at least one of the criteria.

Finally, a school was also categorized as disadvantaged if its score on the Disadvantaged Composite was greater than .90. This final criterion included another 1% of the schools that were disadvantaged across several criteria but had "just missed" each individual cutoff point specified above.

Three measures were used in deciding whether to classify a school as advantaged: 1) the percentage of students in the school whose parents are professional or managerial personnel, 2) the average ability of students upon entry to the school, and 3) an Advantage Composite score that indicates a school's mean z-score across both these measures. Schools were categorized as advantaged if the principal rated the average academic ability of students as "considerably above the national norm" or if the percentage of professional and managerial families in the school was 1.25 standard deviations or more above the national average. A school was also categorized as advantaged if its score on the Advantage Composite was greater than .90.

Schools that were not classified as disadvantaged or advantaged were classified as regular schools. Of the 1,727 schools that could be classified, 1,219 (71%) were regular, 261 (15%) were disadvan-

taged, and 247 (14%) were advantaged. The proportion of schools falling in each category differs slightly from the proportion of seventh-graders who attend schools in each category. For example, small schools in rural areas were less likely than others to meet the criteria for being classified as advantaged or disadvantaged. Whereas 71% of the nations' schools were categorized as regular, only 64% of the nations' seventh-graders attend these schools. Completing the picture, 16% of the nations' seventh-graders attend disadvantaged schools, and 20% attend advantaged schools.

Table 1 shows the means and standard deviations for disadvantaged, regular, and advantaged schools on various measures of student characteristics. Comparing the means across columns shows how the components of the two major indexes differ for disadvantaged and other schools and shows how disadvantaged the students in these schools really are -- for example, almost one-quarter of the students in disadvantaged schools are not expected to graduate from high school and almost half come from families who are on welfare or not regularly employed. Although the racial and ethnic composition of a school is ignored in the classification process, schools that contain a high proportion of minority students are much more likely to be classified as disadvantaged than are other schools.

Not all disadvantaged students attend "disadvantaged schools." Schools classified as regular and advantaged usually enroll modest numbers of disadvantaged students. For example, regular middle grades schools have an average of 62 children whose parents are on welfare or not regularly employed and advantaged schools have an average of 30 such children. Thus, even these schools must consider how to effectively educate disadvantaged students. On the other hand, the challenge of providing an effective education for a whole school of disadvantaged students (the average disadvantaged school has 259 students whose parents are on welfare or not regularly employed) is a challenge of a different magnitude than that faced by other schools.

Insert Table 1 about here

Results

There are disadvantaged schools in all regions of the country and in all settings (urban, suburban, and rural), but disadvantaged schools are more likely than advantaged and regular schools to be located in the South and are less likely to be found in the Midwest. Disadvantaged schools are also much more likely than other schools to be found in urban areas.

Size and Grade Span

Two favorite topics of middle grades educators are school size and grade span (e.g., Alexander & McEwin, 1989). Although size and grade span are not the most important determinants of successful programs in the middle grades, they often influence the curricula, instruction, and support that schools are able to offer to students (Epstein & Mac Iver, 1990; Epstein, 1990).

The average total enrollment in disadvantaged middle grades schools is 543. This is significantly larger than regular schools but is about equal to the average enrollment in advantaged schools. (See Table 2.) Interestingly, disadvantaged schools enroll significantly fewer seventh-graders than do advantaged schools. This difference is due to grade organization differences between disadvantaged and advantaged schools. (See Table 3.)

There are a variety of reasons why advantaged and disadvantaged schools are larger than regular schools. Small rural schools are less likely than other schools to serve especially advantaged or predominantly disadvantaged populations. Thus, these schools are overrepresented in the "regular schools" category. On the other hand, schools for the advantaged are often found in fast-growing, high-status neighborhoods in a city or suburb; "hot" neighborhoods where professional and managerial families prefer to settle. Often, school construction programs cannot keep pace with neighborhood growth in these locations. Thus, existing school buildings are frequently overcrowded.

Still another reason why schools that serve mainly advantaged youth are larger than average is that parents of advantaged youngsters, when given a choice, enroll their children in these schools even if they do not live in the immediate proximity of the school. For example, in many urban districts, parents have the choice of sending their child to the middle grades school in their "zone" or to a "city-wide" middle grades school open to children from any zone. These city-wide schools usually offer advanced academic programs that are designed for high achieving youth and are popular with upper-middle-class parents. Often, these city-wide

schools are filled to capacity and have long waiting lists.

Disadvantaged schools are larger than the average school because these schools are more often located in densely-populated urban neighborhoods. The parents in these neighborhoods may not have any real option but to send their child to the local neighborhood public school. They do not have the money to send their children to a private school or to transport their children to a public magnet school outside the neighborhood. These factors help keep the enrollments high in disadvantaged middle grades schools.

Insert Tables 2 and 3 about here

Although there are disadvantaged and advantaged schools of all grade organizations, advantaged schools are more likely than disadvantaged schools to be 6-8 middle schools or 7-8 schools. (See Table 3.) Advantaged schools are less likely than disadvantaged and regular schools to be middle-high schools or other "combination schools" that combine middle grade students with students from other levels. If having a combination of students from different levels of schooling in the same building makes the implementation of recommended middle grades practices more difficult (Epstein & Mac Iver, in press), then schools serving mainly disadvantaged or regular students may find it harder than advantaged schools to adopt some of the key practices of the middle grades reform movement.

In the data analyses that follow, the differences between disadvantaged and other schools in the curriculum and instruction they offer to their students are estimated after controlling for the effects of grade organization, grade enrollment, region, and urbanicity/size of metropolitan population. Because the type of student population that predominates at a school is confounded with these control variables, the findings may underestimate the effects of a school's type of student population on curriculum and instruction.

Course-Taking Opportunities

The courses that students receive directly determine the content and skills that they have an opportunity to learn. Principals reported how many of their seventh and eighth grader are offered selected basic and advanced academic courses, and selected practical, fine arts, and exploratory courses.
Other analyses of these data (Becker 1989, 1990) have established that young adolescents' opportunities for learning are affected by school characteristics, (e.g., grade organization), community characteristics (e.g., urbanicity), and student enrollee characteristics (e.g., ethnicity). For example, schools that start with the elementary grades (K-8, K-12) are limited in advanced academic offerings and typically provide fewer opportunities for students to take elective subjects such as home economics, industrial arts, and typing. Middle grades schools in big cities offer students a less rich array of course-taking opportunities than do schools in other types of communities. Conversely, students who attend suburban schools generally have more elective course-taking opportunities than students elsewhere.

In contrast to previous work, schools that share a similar type of student population are grouped in our analyses and comparisons are made among these groups of schools. This approach allows us to describe how the contexts created by schools' student populations influence academic and exploratory course-taking opportunities, organizational structures, extra-curricular programs, remedial activities, instructional approaches, use of responsive practices, and principals' perceptions of the talents needed by teachers. Further, to gain insight into how learning opportunities for students might be expanded through school restructuring -- regardless of whether a school serves mainly disadvantaged, advantaged, or regular populations -- we examine the relations between practices and course-taking opportunities. Finally, because schools that serve mainly white students are often able to obtain greater resources than schools that serve mainly minority students, we also document the independent effects of racial composition of the school on curriculum and instruction.

Academic subjects. Table 4 indicates the percent of students in disadvantaged, regular, and advantaged schools who receive substantial instruction in reading, science, algebra, and foreign language during grades 7 or 8. The means in this table are adjusted means; the differences between schools due to differences in grade organization, grade enrollment, region, urbanicity, and metropolitan population have been statistically removed.

Insert Table 4 about here

Disadvantaged schools did not differ from other schools in the percentage of seventh- or eighth-grade students receiving a reading course (59%) or two full years of science instruction (78%). Thus, at least in these two subject areas, students have equal opportunities to receive basic courses regardless of whether their schoolmates are especially advantaged or disadvantaged. The equal percentages, however, have different implications for students in disadvantaged, regular, and advantaged schools.

For instance, if about three-fifths of the students in advantaged schools receive an extra reading class in addition to English, this may mean that all students that need extra reading instruction (e.g., all students who are performing below grade level) are receiving it. If three-fifths of the students in disadvantaged schools receive an extra reading course, it may mean that up to two-fifths of the students who need extra reading instruction are not getting it.

Most middle grades schools do not emphasize advanced courses. On average, fewer than 20% of the students take a year of algebra and fewer than 20% take a year of foreign language in grade 7 or 8. But, advanced courses are emphasized more in schools that serve mainly advantaged populations than in other schools. More than twice as many middle-grade students are given the opportunity to learn algebra in advantaged schools versus disadvantaged schools (25% vs. 11%). Similarly, whereas about 30% of the seventh or eighth graders in advantaged schools take a full year of foreign language, only 13% of the students in disadvantaged schools receive this much foreign language instruction. The coefficients of .67 and .65 in Table 4 express these differences between advantaged and disadvantaged schools in standard deviation units. The mean proportions of students taking algebra and foreign language in advantaged schools are about two-thirds of a standard deviation above the mean proportions in disadvantaged schools. These results support the contention that disadvantaged young adolescents receive fewer advanced or "high content" courses than do advantaged students (Davidson, 1990a).

Students in regular schools are also less likely than students in advantaged schools to receive a full year of algebra or foreign language during seventh or eighth grade. Regular schools offer algebra to a slightly larger proportion of students than do disadvantaged schools, but do not differ significantly from disadvantaged schools in their provision of foreign language.

Practical, fine arts, and exploratory subjects. A full-scale exploratory program is recommended for schools for young adolescents (e.g., Alexander, 1987). We asked principals to report how many of their seventh or eighth graders receive substantial instruction in selected traditional electives, newer electives, and physical education. Based on these reports, we created an Exploratory Program Composite to measure the extensiveness of a school's program. The composite score for each school was obtained by averaging the percentages of students who receive substantial instruction in seven areas: industrial arts, home economics, art, computer education, typing/keyboarding, physical education, and minicourses. In most subjects, "substantial instruction" was defined as receiving 30 or more class periods of instruction in the subject. Substantial instruction in physical education was defined as receiving P.E. at least 3 days per week.

Averaging across subject areas, the mean percentage of students receiving substantial instruction was about 50%. Disadvantaged schools offer a full-scale exploratory program to fewer students than do advantaged schools. (See Table 5.) Specifically, the mean composite score for disadvantaged schools is about one-fifth of a standard deviation less than the score for advantaged schools and -- across subject areas -- the average difference between the percentages of students receiving substantial instruction in disadvantaged versus advantaged schools is about 5%. Regular schools do not differ from disadvantaged schools on the exploratory program composite.

Insert Table 5 about here

Although being a disadvantaged school is associated with having a less extensive exploratory program overall (see also related findings in the next section regarding extracurricular activities, activity periods, and the inclusiveness of exploratory programs), it is generally not a significant predictor of the percentage of students who receive instruction in specific exploratory areas (Table 5). That is, knowing that a school is a disadvantaged school allows one to predict that its exploratory program will be less extensive, but does not help one to predict the particular areas in which the program will be less extensive. The only exception -- the only area that is reliably less extensive -- is art. Disadvantaged schools offer art to fewer students than both advantaged and regular schools.

Practices, Programs, and School Organization Policies

Principals in schools that contain grade 7 reported on their current use of almost two dozen often recommended practices for the middle grades including curricular, extra-curricular, instructional, scheduling, teaming, advising, parent involvement, and staff development practices. This section compares disadvantaged schools and other schools in their use of these practices.

For each practice listed in Table 6, principals indicated whether the practice was part of their school's present middle grades program. Linear probability analyses using Goldberger's (1964) weighted least squares approach were used to estimate the difference in probability of using a given practice in advantaged or regular schools versus disadvantaged schools. Included in the analyses were controls for

grade organization, grade enrollment, region, and urbanicity.

Insert Table 6 about here

Curriculum, instruction, and extracurricular activities. Overall, about 65% of the schools that contain grade 7 provide extracurricular activities or activity periods for all students (Epstein & Mac Iver, in press). However, the probability of using this practice is 8% higher in schools that serve mainly advantaged students than in disadvantaged schools.

The second variable listed in Table 6 is a simple measure of the inclusiveness of a school's exploratory program. This variable distinguishes between a) schools in which all students in each of the middle grades take exploratory or minicourses and b) schools in which there is no exploratory program or in which some students or some grade levels are excluded from the program. Only about 34% of the nation's public middle grades schools have a fully inclusive exploratory program (Epstein & Mac Iver, in press). Both advantaged schools and regular schools are more likely than disadvantaged schools to offer exploratory courses to all students at all grades. Thus, whether the focus is on the inclusiveness of schools' extracurricular activities and exploratory programs (as in the first two rows of Table 6) or on the extensiveness of schools' elective offerings (as earlier in Table 5), disadvantaged schools offer fewer opportunities to students.

Although middle grades students are quite diverse in their skills and needs, many schools (89%) say that they provide all students with a common academic curriculum. Disadvantaged, regular, and advantaged schools do not differ in their use of a common curriculum.

Overall, 42% of the schools that contain grade 7 have independent projects for all students in English or social studies and 38% have such projects for all students in math or science. Disadvantaged schools are just as likely as other schools to offer independent projects to all students. This suggests that some schools of all types recognize the importance of helping students develop the ability to autonomously choose, plan, and carry out learning tasks.

Although cooperative learning has many viable and successful forms (Slavin,1990), eight out of every ten middle grades schools in the U.S. are <u>not</u> using cooperative learning methods (Epstein & Mac Iver, in press). Use of these methods is just as rare in disadvantaged schools as in other schools (Table 6, Variable 6).

One dilemma faced by middle grades schools is how to provide appropriate and meaningful instruction without tracking students into narrow ability groups or applying labels that diminish students' confidence in their abilities and their attachment to school (Maryland Task Force on the Middle Learning Years,1990). In schools that use tracking, lower track classrooms are often assigned to the least experienced teachers because senior teachers generally prefer to teach "high track" students (Braddock & McPartland, 1990). Because both teachers and low track students believe that the students are not capable learners, the pace of instruction in low-ability classes is slower, fewer opportunities are provided to learn higher order skills, and students are not expected to meet the same standards as students in other tracks (Oakes, 1985; Mitchell, 1989).

One alternative to tracking is mixed-grade grouping that allows schools to match instructional content to individual student's knowledge and abilities while ensuring that every classroom contains a mix of low achievers, average achievers, and high achievers. For example, under such a system, a pre-algebra class might contain seventh graders who are achieving at grade level, sixth graders who are achieving above grade level, and eighth graders who are achieving below grade level. About 36% of the nation's seventh-graders attend schools in which mixed-grade grouping is used for at least some academic classes. Disadvantaged schools are similar to other schools in their use of this innovative form of grouping students (Table 6, Variable 7).

One outgrowth of the accountability movement of the 1980s is the increased use of minimum competency tests to determine students' promotion to high school. Currently, 31% of the nation's middle grades schools use minimum competency tests for this purpose. As can be seen in Table 6, disadvantaged schools are significantly more likely than either advantaged or regular schools to use minimum competency test results to determine advancement to high school. Schools and districts that serve disadvantaged populations may be more likely than other schools and districts to fear that their students may reach the end of the middle grades without having acquired all the competencies needed for high school and to use the tests to assure a level of "readiness." Unfortunately, reliance on a minimum competency test may backfire under certain circumstances. If more students are retained in the middle grades because of low test scores, this may raise high school dropout rates (Shepard & Smith, 1989). On the other hand, if minimum competency tests motivate schools to establish effective remedial programs that assure that virtually all students will acquire the required competencies "on-time" (i.e.,

without being retained), then the tests may lower dropout rates.

Scheduling. The course-taking opportunities provided to students in middle grades schools are partly determined by the schools' scheduling practices. For example, schools that have a six-period day may find it impossible to offer their students as wide a variety of academic and exploratory courses as they would like to offer. The major academic subjects (math, English, reading, social studies, and science) will require most of the school day. In contrast, schools that organize an eight-period day can offer students a wider variety of curricular experiences. For example, a 390-minute school day might be divided into eight 45-minute periods (plus a 30-minute lunch) rather than into six 60-minute periods (plus lunch). Only 30% of the schools surveyed use an 8-period day for middle grades instruction. Advantaged and disadvantaged schools were equally likely to report using an 8-period day. Regular schools, on the other hand, were slightly less likely than disadvantaged schools to use this innovative scheduling practice.

Nineteen percent of the schools that contain grade 7 have adopted flexible time schedules (Epstein & Mac Iver, in press). This system permits the length of class periods to vary from one day to the next in order to accommodate students' needs and differing instructional activities. Disadvantaged schools did not differ from other schools in their use of this practice.

Organization of teams or departments. Interdisciplinary teams are composed of teachers who teach different subjects, but who share the same group of students and, in theory, coordinate their instructional programs across subjects. Only 37% of the schools that contain grade 7 use interdisciplinary teaming. Disadvantaged schools are more likely than regular schools and as likely as advantaged schools to implement interdisciplinary teams of teachers. Interdisciplinary teams of teachers are advocated by many as a key organizational feature of middle grades education. Increasing numbers of schools serving predominantly disadvantaged students are reaching out to try this practice in an attempt to better serve their students.

About three-fifths of the middle grades schools in the U.S. organize their faculty into departments with each department having a chair person or head. Schools serving disadvantaged populations are less likely to follow this practice than are other schools. A departmental organization that encourages teachers in the same discipline to work together to develop and maintain a high level of expertise in their subject area may help schools to provide students with high quality instruction. For example, schools that are organized departmentally use higher-order/active-learning instructional methods significantly more often than do other schools ($\Delta = .12$, $p<.05$).

About 25% of all schools that contain grade 7 have common planning periods for members of departments and 28% have common planning periods for members of interdisciplinary teams. Schools that serve predominantly disadvantaged populations are just as likely to have these common planning periods as are other schools.

Practices for more responsive education. One major challenge facing educators in the middle grades is how to provide early adolescents with the social and emotional support they need to succeed as students. One supportive practice that is used in 75% of all middle grades schools is the homeroom or group advisory period. Disadvantaged schools are just as likely as other schools to use homeroom or group advisory periods and to assign students to the same advisory teacher for all years in the middle grades.

On the other hand, disadvantaged schools are much less likely than other schools to engage in parent involvement practices. Compared to other schools, disadvantaged schools are less likely to recruit and train parents to work as school volunteers, offer parent workshops, communicate frequently with parents on how to help their children with homework and skills, and have an active P.T.A. With the assistance of parents, schools can increase support to disadvantaged students and can encourage them to work hard in school, complete homework, aspire to graduate from high school and attend college or other post-secondary education programs. But schools for the disadvantaged are lagging way behind other schools in organizing comprehensive parent involvement programs (Epstein, 1987; Brandt, 1989). It may be that teachers and principals in these schools do not understand the strengths and needs of their children's families, nor the steps that are needed to build meaningful and productive school and family connections with hard-to-reach parent populations (Epstein & Dauber, 1988).

Teachers in the middle grades often lack specialized training in early adolescent characteristics and in specific teaching strategies for the middle grades. Most secondary-trained teachers and elementary-trained teachers who are teaching in the middle grades need additional education on early adolescent needs, characteristics, and development, and on new and effective instructional approaches for the middle grades that differ from those used in high schools or elementary schools. The probability that teachers will be offered staff development in these subjects is 10% higher in advantaged and regular schools than in disadvantaged schools. The relative

lack of staff development in disadvantaged middle grades schools may be especially problematic given that the teachers in these schools face the added problem of understanding and instructing early adolescents (a) whose low academic skills may be producing low self-esteem and low feelings of competence, (b) whose economic disadvantages place them at greater risk for a host of negative outcomes, and (c) whose family backgrounds and cultures often differ from those of their teachers.

Relating School Organization Policies to Course-Taking Opportunities

The course-taking opportunities provided to students in middle grades schools are partly determined by the schools' other policies and practices. To examine these connections, we selected for further study 11 of the 23 practices just discussed that, in theory, influence course-taking opportunities. These analyses may prove useful to educators in schools for disadvantaged students who are seeking ways of offering a wider variety of advanced and exploratory courses to a greater number of their students.

In Table 7, the effects of these practices are estimated using a multiple regression model that also controls for the effects of type of student population (disadvantaged, regular, or advantaged), grade organization, 7th-grade enrollment, region, and urbanicity. Table entries are Δ coefficients (metric regression coefficients expressed as a proportion of the dependent variable's standard deviation.) For example, the .17 in the upper left hand corner of the table indicates that the mean proportion of students who receive a course in reading during 7th or 8th grade is .17 standard deviations higher in schools that have an 8-period day than in other schools. (The standard deviation associated with the mean proportion of students who receive a reading course is .36; thus, about 6% more students receive reading instruction in schools that have an 8-period day than in other schools.)

Insert Table 7 about here

Earlier, we suggested that when a school schedules an eight-period day rather than a 6- or 7-period day it should be able to offer its students a wider variety of curricular experiences. As expected, in almost every subject area (including both academic and exploratory subjects), the use of an 8-period day increases the proportion of students who receive substantial instruction in that subject. These increases are most marked in the proportion of students receiving computer education (e.g., with an 8-period day, one computer lab can serve 8 classes worth of students per day rather than just 6 or 7 classes) and minicourses (e.g., with an 8-period day there is time to add courses to the basic academic subjects). We have seen that disadvantaged schools lag behind other schools in their advanced, elective, and exploratory offerings (Tables 5 & 6) and that the percentages of students receiving reading instruction in disadvantaged schools is no higher than in other schools in spite of larger numbers of students who need extra help in mastering advanced literacy skills (Table 4). The first row of findings in Table 7 suggests that, by establishing an eight-period day, disadvantaged schools may be better able to offer these learning opportunities to their students.

Schools that use interdisciplinary teams and provide common planning periods have stronger exploratory or elective programs; more students receive substantial instruction in foreign language, industrial arts, home economics, art, typing, and minicourses. This may occur for at least two reasons. The typical interdisciplinary team is comprised of four teachers providing instruction in English, Math, Social Studies, and Science. These teachers share the same group of 150 or so students. For a common planning period to be possible, all of these teachers must be free at the same time. The typical solution is to send all of the students on the team to exploratory courses during the planning period for their team of teachers. Thus, at many schools, the implementation of interdisciplinary teaming results in an increase in the breadth of electives or exploratory offerings. It is also probably true that schools that embrace one of the keystones of the middle level education reform movement (e.g., interdisciplinary teaming) may be more likely to embrace other key practices as well (e.g., a full-scale exploratory program).

In schools that use interdisciplinary teaming, slightly fewer student receive two <u>full</u> years of physical education during 7th and 8th grade. Because these schools tend to offer a wide variety of practical, fine arts, exploratory, and mini-courses, they often allow students who are less interested in athletic pursuits to "opt out" of physical education for at least one term.

Schools that use interdisciplinary teams offer a separate reading course to fewer students than does the average school, perhaps because many schools have an English teacher but not a reading teacher on the interdisciplinary team. An English teacher is present on 91% of the nations' interdisciplinary teacher teams but a reading teacher is present on only 65% or less of these teams. Follow-up analyses support this interpretation. If one controls for team composition, use of interdisciplinary teaming is unassociated with opportunities to take a separate course in reading. In fact, in schools where reading teachers are on the teams, about 33% <u>more</u> students

receive reading than in other schools. But, in schools where each team includes an English teacher, about 21% fewer students receive a separate course in reading than in other schools. In schools where English teachers but not reading teachers are interdisciplinary team members, reading instruction -- if offered at all -- may be integrated with instruction in English or may be offered as an "assigned elective" only for those who need extra help.

Schools that use interdisciplinary teams and provide common planning for team members offer algebra to more students than do other schools. The teaming structure may facilitate the regrouping of students so that algebra can be offered to anyone on the team who is believed to be "ready."

Having a common planning period for all the members of a department does not lead a school to establish a stronger exploratory or elective program. When one department is planning, the other academic departments are still available to teach. Schools with a strong emphasis on departments (as evidenced by departmental planning periods) tend to place more emphasis on academic subjects. These schools offer foreign language and separate reading courses to significantly more students than do schools who lack a departmental focus. Departmentally-organized schools often have a foreign language department, and English teachers are less likely to consider themselves qualified to teach reading. As a result, separate foreign language and reading courses taught by subject-matter specialists are often offered in these schools.

Schools that have flexible time schedules (such that today's class periods may differ in length from tomorrow's) offer reading, foreign language, art, and minicourses to significantly more students than do other schools but offer home economics to significantly fewer students.

When they establish a group advisory or homeroom period, do schools cut back on offerings in other subjects to "make room?" The evidence indicates that this is not the case. In fact, schools that adopt group advisory periods offer algebra, industrial arts, and minicourses to slightly more students than do other schools. Again, these findings may reflect the tendency for schools who adopt one key middle grades practice to also try to adopt other key practices.

A school's approach to remediation influences the pattern of course enrollments in a school. Elsewhere, we have reported that the practice of providing students who need extra help with an extra subject period during the school day (e.g. as an assigned elective) may be a particularly effective approach to remediation (Mac Iver and Epstein, 1990). This approach guarantees that students who need extra help will receive it without the inefficiencies, disruptions, and stigmas associated with pullout programs and without the attendance problems associated with before- or after-school programs. Schools that use the extra-subject period approach to remediation offer reading to fewer students (perhaps, only those who need the extra help take reading); they offer foreign language, home economics, and minicourses to more students (students who are not in need of remediation are free to take minicourses or exploratory courses during the extra period, and where there are multiple extra periods, even those who receive extra academic help can take electives or minicourses).

Certain district level policies influence course offerings in the middle grades. For example, in districts where students must pass minimum competency tests to be promoted to high school, schools offer art or reading to fewer students but offer two full years of science to more students. The exploratory programs at these schools place a greater than average emphasis on mini-courses.

Schools increase exploratory offerings by scheduling an "activity period" for all students. Such a period significantly increases the proportion of students who are offered typing, minicourses, and physical education.

If a school decides to offer exploratory or minicourses to all students, the percentage of students who take industrial arts, home economics, computer education, typing, and minicourses reflects this decision. On the other hand, if a school decides that all students in a grade will be offered a common academic curriculum, that school is less likely to offer minicourses.

The increase in predictive power that is obtained by considering the practices listed in Table 7 differs for different subject areas. The next to last row in Table 7 gives the adjusted R2s for regression models in which course-taking opportunities are predicted based on type of student population, grade organization, seventh-grade enrollment, region, and urbanicity. The last row reports the adjusted R2s obtained if one adds to each model those practices that are significantly related to the proportion of students who receive substantial instruction in that specific subject area. Overall, the practices listed in Table 7 have the most influence on course-taking opportunities in the areas of computer education, minicourses, typing, and foreign language.

Instruction

Teachers of middle grades students use a variety of instructional approaches, including some that em-

phasize higher-order reasoning, thinking, and comprehension skills instead of basic skills and some that promote active learning (including peer group interactions) rather than passive learning. For each of the four major academic subjects, principals were asked to estimate "how often a TYPICAL teacher -- not the best or weakest teacher-- would use these (higher-level/active learning) approaches with an AVERAGE seventh-grade class." Examples of the specific approaches we inquired about include: have students edit, rewrite, and resubmit their essays after peer or teacher review (in English), organize peer-tutoring or cross-grade tutoring (in math), conduct hands-on laboratory work (in science), and discuss controversial issues and debate ideas of history and current events (in history).

Principals were also asked to report how frequently teachers used instructional approaches that emphasize drill and practice (in language basics, math computation, basic science facts, and facts of history). The full list of instructional approaches that principals were asked about can be found in Epstein and Mac Iver (in press).

In other analyses with these data, Becker (1989, 1990) found that in middle grades schools throughout the nation, drill and practice and memorization of facts predominate; active learning and critical thinking lag far behind. For example, typical science teachers provide instruction, drill, and practice in basic science facts everyday in 57% of the schools, but in only 10% do students conduct hands-on laboratory work daily. English teachers in virtually all middle grades schools (96%) give students drill and practice on vocabulary, punctuation, and grammar at least weekly, but students edit and rewrite essays weekly in less than half (42 percent) of the schools. Typical math teachers give daily drills on computation in 78 percent of the schools; they emphasize creative problem-solving and math applications in only 25 percent of the schools. Further, even though most adults use electronic calculators when performing mathematics in the "real world," math teachers rarely or never have students use calculators in 43 percent of the schools.

In further analyses examining the antecedents of classroom instructional activities, Becker (1989) used as his dependent variable an index based on the difference between two factor scores (i.e., the frequency of higher-level/active-learning methods minus the frequency of drill-and-practice activities). Among other results, he found that K-8 and K-12 schools had lower than average scores on this index and that schools serving greater numbers of upper-middle class students had higher than average scores. The latter finding implies that advantaged schools emphasize different instructional approaches than disadvantaged and/or regular schools. But because of the factorial complexity of the index, we can't tell whether advantaged "upper-middle class" schools use higher-level/active-learning methods more frequently than other schools or use drill-and-practice methods less frequently than other schools, or both. In addition, it is unclear whether disadvantaged and regular schools differ in their instructional approaches.

We created two separate composites to measure use of higher-level/active learning methods and drill-and-practice methods. A school's score on the higher-level composite was obtained by translating the school's frequency of use of each higher-level/active method into a z-score and then computing the average z-score for the school on these methods. Similarly, a school's score on the drill-and-practice composite was computed as the school's average score on the drill-and-practice approaches.

A multiple regression analysis (controlling for the effects of grade organization, 7th-grade enrollment, region and urbanicity) revealed that advantaged schools use higher-level/active-learning instructional methods much more frequently (one-third of a standard deviation more) than either disadvantaged schools or regular schools. Regular schools and disadvantaged schools do not differ significantly from each other in their use of these methods.

A separate multiple regression analysis revealed that the three types of schools do not differ in their frequency of use of drill and practice methods. In sum, drill and practice methods are dominant in schools of all types, but schools that serve mainly advantaged populations supplement these methods with richer instructional approaches.

Teacher Attributes

Schools that enroll a high concentration of disadvantaged students face some special challenges. In order to successfully meet these challenges, the teaching staff at these schools may need some special talents. What attributes do principals in disadvantaged schools want most in their teachers? How do these attributes compare to those ranked highly by principals in advantaged schools?

We asked principals to indicate which three of the following attributes they believe are most important for seventh-grade English teacher to possess:

Command of the subject area

Ability to teach reading

Ability to prepare students for high school

Ability to help students make the transition to the middle grades

Ability to increase student motivation

Ability to teach study skills

Understanding of early adolescent development

Overall, the principals' top three choices are command of subject area, ability to increase student motivation, and understanding of early adolescent development. However, the type of student population served by a school influences the attributes that the principal looks for in his or her English teachers. Linear probability analyses revealed that principals in disadvantaged schools had a 12% higher probability of selecting ability to teach reading as one of the most important talents for an English teacher to possess than did principals in advantaged schools. Principals in disadvantaged schools were 11% more likely than principals in regular schools and 9% more likely than principals in advantaged schools to select ability to increase student motivation as a key attribute. The teacher talents especially sought by principals in disadvantaged schools reflect the large proportions of students in these schools who are displaying reading or motivational problems.

Remedial Activities for Students

All schools have some students who fall behind or learn more slowly than others. We asked principals to report the remedial activities offered to these students. The most common remedial activities were pull-out programs in reading or English (present in 64% of the schools that contain grade 7), after- or before-school coaching classes (53%), pull-out programs in math (51%), and summer school (37%). Schools were less likely to offer students an extra subject period in lieu of an elective or exploratory course (22%), and rarely offered remediation through Saturday classes (2%). Ironically, many of the special remedial activities on our list were more common in schools for the advantaged and regular schools than in schools for the disadvantaged (see Table 8) -- the schools with the most students needing remediation were also the schools providing the least extensive remedial programs. This finding reflects the magnitude of the remedial task faced by disadvantaged schools versus other schools. Schools that have relatively few disadvantaged students find it easier to provide remediation to these few students. For example, to institute an after-school coaching program in a school where only a few students need remediation may require one volunteer teacher who is willing to "go the extra mile." But to mount a reasonable after-school program in a school attended mainly by disadvantaged youth could require a dozen or more volunteer teachers.

Insert Table 8 about here

The Effects of Racial Composition of School on Curriculum and Instruction

In our analyses, the racial composition of a school was not considered when classifying the school as disadvantaged, regular, or advantaged. Schools were classified based on the presence of academic achievement-related risk factors (e.g., the average academic ability of students upon entry to the school), the students' academic records or histories (e.g., the proportion of students not expected to complete high school), and several measures of the average family economic background of the schools' students.

Although our school classification process was color-blind, our nation's educational system is not. Schools that serve mainly white students are often able to obtain greater resources than schools that serve predominantly minority youth (Network of Regional Desegregation Centers, 1989). Thus, there is reason to fear that -- even after controlling for other indicators of disadvantage -- the racial composition of a school will predict the course-taking opportunities, instructional practices, and programs offered to students. In schools that have similar scores on indicators of disadvantaged, white schools may be more likely than minority schools to offer students special opportunities, practices, and programs. In this section, we examine whether the percentages of black and Hispanic students in middle grades schools affect curriculum and instruction independently of and in addition to the effects of type of student population, grade organization, grade enrollment, region, and urbanicity.

Course-taking opportunities in academic subjects. Neither the percent of Hispanics nor the percent of blacks attending a school affect students' opportunities to take courses in reading, science, algebra, and foreign language. Thus, minority and white disadvantaged schools are about equal in their academic course offerings, as are minority and white advantaged schools. But -- as shown next -- this does not mean that students in minority schools and students in white schools are receiving academic instruction of the same quality or content.

Instructional methods in academic subjects. Although disadvantaged minority schools are, for example, just as likely as disadvantaged white schools to offer two full years of science courses to

their seventh and eighth graders, educators in minority schools are less likely to use interactive, "hands-on," or "higher-order learning" instructional methods during their science instruction. An increase of one standard deviation in the percent of black students in a school (e.g., from 0% to 23%) is associated with a one-tenth of a standard deviation decrease in the frequency with which teachers use higher-level/active-learning methods in the major academic subjects ($\beta = -.10$, $p = .03$). The proportion of Hispanics in a school is also negatively related to students' opportunities for higher-order active learning ($\beta = .07$, $p = .02$). Based on these multiple regression estimates, educators in all-black schools use higher-level/active learning approaches .43 standard deviations less often than do educators in all-white schools. Similarly, educators in all-Hispanic schools use these rich instructional approaches about .45 standard deviations less often than educators in all-white schools.

Course-taking opportunities in exploratory subjects. The racial composition of the student population in a school is associated with the exploratory opportunities provided to students, even after controlling for type of student population, grade organization, grade enrollment, region, urbanicity, and size of metropolitan population. These racial composition effects remain undiminished even when we substitute a finer-grained, continuous measure of disadvantage (the Disadvantage Composite) for our categorical "type of student population" measure in the regression analyses. An increase in a school's percent of Hispanic students of one standard deviation (e.g., from 0% to 16%) is associated with about one-fifth of a standard deviation decrease in the overall exploratory program composite ($\beta = -.19$, $p < .0001$). In a school of average size, this represents about four fewer students per subject area who receive substantial instruction. Analyses of each subject area separately show that schools that contain higher percentages of Hispanic students offer fewer students art ($\beta = -.07$), typing ($\beta = -.10$), industrial arts ($\beta = -.19$), home economics ($\beta = -.12$), computer education ($\beta = -.07$), and minicourses ($\beta = -.19$).

Similarly, an increase in the percent of black students in a school of one standard deviation is associated with a decrease of .14 standard deviation units on the overall exploratory program composite ($p < .0001$). Schools that contain higher percentages of black students offer art ($\beta = -.16$), typing ($\beta = -.17$), computer education ($\beta = -.14$), industrial arts ($\beta = -.07$), and minicourses ($\beta = -.12$) to significantly fewer students.

In sum, schools that have more minority students offer their students a middle grades program that is less rich and less challenging than other schools in at least two ways. First, they offer fewer of the "hands-on" and "higher-order thinking" instructional activities that readily engage the enthusiasm of young adolescents and help them to think critically, write better, and develop the"groupwork" skills that they will need in the workplace. Second, they fail to provide students with as many opportunities to explore fine arts, practical and life skills, and other enriching curriculum areas.

Discussion

Disadvantaged, advantaged, and regular schools serve families with highly discrepant educational and occupational resources and serve students from different race and ethnic backgrounds. The students in disadvantaged schools are often minority students living below or near the poverty line in urban settings. They are dramatically behind students from other schools in academic achievement when they enter the middle grades and are expected by their principals to remain educationally disadvantaged with low promotion and high dropout rates.

Disadvantaged students have all the needs and problems of other young adolescents, plus the extra burdens created by their minority status and by the educational weaknesses and economic hardships that they face. Middle grades schools can play a crucial role in helping these students to master the ordinary and extraordinary challenges they are experiencing and to thrive during early adolescence and beyond (Carnegie Task Force, 1989). But, in present practice, are disadvantaged middle grades schools "part of the solution" or "part of the problem?" Specifically, in schools serving disadvantaged populations, are students less likely to receive the kinds of learning opportunities that enhance learning skills, student motivation, and attachment to school in early adolescence? In addressing this question, the analyses of data from principals in U.S. public middle grades schools reveal some good news and some bad news concerning educational programs in schools for educationally and economically disadvantaged students.

One piece of good news is that young adolescents in disadvantaged schools are as likely as other young adolescents to be offered substantial instruction in core academic subjects. The question is whether equality of opportunity is enough. If the nation's educational system in the middle grades

were truly responsive to the needs of disadvantaged students, students in disadvantaged schools would be more likely (rather than equally likely) to receive a separate course in reading. Early adolescence represents a critical period in the acquisition of advanced literacy skills (Davidson, 1990). Does it make sense that schools serving the youth with the most severe literacy needs are not more likely than other schools to offer courses and remedial instruction specifically devoted to helping students correct and advance their reading skills?

One piece of bad news is that students in disadvantaged middle grades schools are much less likely than students in advantaged schools to have opportunities to take algebra in the middle grades. Because the students in disadvantaged schools often have not yet mastered basic facts and mechanical skills in mathematics, many educators reject offering the students algebra or other advanced math. Instead, they continue to drill students in math computation, multiplication tables, and other primary skills. Disadvantaged schools have perhaps lost sight of the fact that the universal availability of the electronic calculator makes the ability to perform computational algorithms a skill that is no longer an absolute requirement for "doing mathematics in the real world" (Becker, 1988). By offering disadvantaged students accelerated mathematics courses that "assume the calculator," schools can focus instruction for all students on higher-order skills and concepts.

Although the range of school sizes within any type of school is great, both disadvantaged and advantaged middle grades schools are significantly larger than the average school. Some of these schools are beginning to recognize their large enrollments as a potential problem and are implementing responsive programs (e.g., interdisciplinary teams of teachers or group advisory plans) that seek to prevent students from feeling lost, ignored, or anonymous (Mac Iver, 1990).

Two areas in which disadvantaged schools lag behind other schools is in their connections with families and their staff development. The two major educational resources available to disadvantaged students -- parents and teachers -- are not receiving the training and guidance they need to be more effective in helping these students succeed.

Schools serving disadvantaged populations often have many young adolescents who doubt both their competence and their interest in major academic subjects. Opportunities to explore art, computers, foreign language, and other elective subjects or minicourses helps to engage these students' special interests and talents and to keep these students attached to school. Students who do not particularly like or excel in math, English, science, or social studies may become irregular attendees or discipline problems during the middle grades unless some other parts of the curriculum motivate and interest them. Given the potential "drawing power" of high-quality exploratory programs, it is disturbing that schools for the disadvantaged (and predominantly black and Hispanic schools of any type) are less likely than other schools to offer a rich array of exploratory or minicourses or extracurricular activities to their young adolescents. It is likely that inequities in funding (e.g., for equipment and materials acquisition, teacher salaries, and staff development) underlie some of these between-school differences in exploratory and extracurricular programs.

Even if equity in educational funding is never achieved, disadvantaged schools can increase students' opportunities for learning. For example, by adopting an 8-period day, schools can offer a richer set of course offerings without hiring additional staff. This assumes, for example, that the staff at the school will teach 6 shorter periods (with two planning periods) rather than 5 longer periods (with one planning period). Or, by making "coaching class" an assigned elective for every student who needs extra help, schools can make sure that those who need remedial instruction receive it. Or, by using mixed-grade grouping or heterogeneous grouping for at least half the day (Maryland Task Force on the Middle Learning Years, 1990), disadvantaged schools may be able to avoid the creation of a low track of students who receive the least experienced teachers, a plodding pace of instruction and few opportunities for active learning or critical thinking.

It is encouraging that disadvantaged schools are as likely as other schools to use some of the most often recommended practices for education. Disadvantaged schools are as likely to use cooperative learning methods and group advisory periods as are other schools. They are more likely than regular schools to use interdisciplinary teaming, a practice which "is central to the middle school concept" (Vars, 1987). These findings suggest that educators in many disadvantaged schools are reaching out in new directions to improve programs and practices. For each of these practices, there is evidence that strong implementation yields benefits that are educationally significant (e.g., Bossert, 1988, Mac Iver, 1990, Slavin,1983). Further, a review of "promising programs" for improving academic subjects in the middle grades yields many examples of effective programs with important components that can be implemented in schools serving disadvantaged students (Epstein & Salinas, 1990). Unfortunately, without adequate staff development opportunities, teachers in schools for the disadvantaged seldom receive the in-service training and

follow-up support necessary to develop truly effective implementations of these or other practices.

The results of this survey provide a snapshot of the learning opportunities provided to students in schools that serve mainly disadvantaged populations. To avoid exaggerating the differences between disadvantaged and advantaged schools, certain other risk factors were statistically "held constant" while estimating these differences. But we must not forget that many youth are in double, triple, or quadruple jeopardy. For example, a student attending a minority school that serves mainly minority students in a big city in the South is "at-risk" of receiving less rich curriculum and instruction on four separate counts. Because risk factors are correlated -- but have effects that are at least partially independent -- the true snapshot characterizing the learning opportunities of many young adolescents is even bleaker than the picture obtained by focusing on only one or two of these factors.

To improve the learning opportunities of students in disadvantaged schools is a formidable challenge. Unless America faces and meets this challenge, millions of youth will reach adulthood without the skills and educational experiences they need to reach their full potential as productive, creative, and thinking members of our society.

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Table 1

Means and SDs for Disadvantaged, Regular and Advantaged Schools on Measures of the Characteristics of a School's Student Population

Measure		Disadvantaged n=261	Regular n=1219	Advantaged n=247	Overall n=1727
Ability of students upon entry[a]	M	1.88	3.18	4.37	3.15
	SD	.85	.71	.72	1.00
Estimated percent of students who will not graduate from high school	M	23.13	6.51	3.84	8.77
	SD	15.64	5.28	3.89	10.12
Percent of school's families on welfare or not regularly employed	M	47.79	13.48	5.57	17.91
	SD	27.19	9.85	7.10	19.33
Percent of district's families living below the poverty line	M	24.70	14.71	8.92	15.39
	SD	10.70	8.15	7.21	9.54
Percent of school's families who are professionals or managers	M	7.25	13.55	51.23	18.22
	SD	6.90	8.71	22.32	18.18
Disadvantage Composite	M	1.28	-.11	-.77	.01
	SD	.63	.44	.38	.75
Advantage Composite	M	-.92	-.13	1.50	.00
	SD	.50	.46	.60	.85
Percent of non-white students	M	60.10	19.55	13.49	24.81
	SD	35.09	27.29	18.11	31.36

[a]Principal's rating on a 5-point scale of the average academic ability of students upon entry to the school; 1 indicates "considerably below the national norm;" 5 indicates "considerably above the national norm."

Table 2
Average Size of Disadvantaged, Regular, and Advantaged Public Schools that Include Grade 7

		Disadvantaged	Regular	Advantaged	Overall
Total Number of Students Enrolled	M	543	463	546	487
	SD	331	313	309	317
	Range	55-2250	9-3616	48-2200	9-3616
Number of Seventh Graders Enrolled	M	142	117	178	129
	SD	134	113	130	121
	Range	5-804	2-1200	7-1000	2-1200

Table 3

Percent of Disadvantaged, Regular, and Advantaged Schools of Various Grade Organizations that Include Grade 7

Type of Grade Organization	Disadvantaged (n = 261)	Regular (n = 1219)	Advantaged (n = 247)
Elementary-Middle Combination (K-8)	27	27	21
Elementary-Middle-High Combination (K-12)	9	13	4
Middle School (6-8)	30	24	41
7-8 School	12	11	19
Junior High (7-9)	9	9	12
Middle-High Combination (7-12)	13	16	3

Table 4

Mean Percentages of Students Receiving Substantial Instruction in Selected Academic Subjects During 7th and 8th Grades

Subject	$M_{Disadvantaged}$	$M_{Regular}$	$M_{Advantaged}$	$\Delta_{Adv - Disadv}$	$\Delta_{Reg - Disadv}$
Reading — a course separate from					
but concurrent with English	59	58	59	−.01	.00
Science — two full years	78	78	79	.04	.00
Algebra — a full year	11	14	25	.67***	.15*
Foreign Language — a full year	13	12	30	.65***	−.06

Note. Means are adjusted means; to permit more meaningful comparisons, the effects of grade organization, grade enrollment, region, urbanicity, and metropolitan population have been statistically removed. The Δ coefficients express the differences between adjusted means in standard deviation units.

*p < .05 **p < .01 ***p < .001

Table 6 (Continued)

Practice	Adv – Disadv	Reg – Disadv
Practices for More Responsive Education:		
15) A group advisory or homeroom period	-.04	-.02
16) Students assigned to the same homeroom or advisory teacher for all years in the middle grades	-.02	.02
17) Parents formally recruited and trained to work as school volunteers	.27***	.21***
18) Workshops offered to parents on school programs and early adolescence	.18***	.14***
19) Teachers frequently send information and ideas to parents on how to help their children with homework and skills	.13***	.14***
20) P.T.A. or P.T.O. with elected officers and active committees	.15***	.11***
21) Conference of parent with all of child's teachers each year	.02	.06**
22) Staff development in early adolescent characteristics and specific teaching strategies for middle grades	.10**	.10***

Note. Table entries indicate the estimated difference in probability of using a given practice in advantaged or regular schools versus disadvantaged schools. These estimates are from linear probability models using Goldberger's (1964) weighted least squares approach to the analysis of dichotomous dependent variables. The analyses control for the effects of 4 other factors (grade organization, grade enrollment, region, and urbanicity); the estimates describe the effects of being an advantaged or regular school that are independent of or in addition to these other factors.

*p < .05 **p < .01 ***p < .001

Table 7
Differences in Mean Percentages of Students Experiencing Selected Courses (Expressed in Standard Deviation Units)

Compared to other schools, how much higher or lower are course-taking opportunities in schools that...	Reading	Science	Algebra	Foreign Language	Industrial Arts	Home Economics	Art	Computer Education	Typing/ Keyboarding	Mini-Courses	Physical Education
a) have an 8-period day?	.17**	.20**	-.05	.20***	.15*	.04	.19**	.27***	.02	.29***	.16*
b) use interdisciplinary teaching teams and the members of a team share common planning?	-.17*		.14***	.21***	.33***	.17**	.20**		.26***	.31***	-.13*
c) have common planning periods for departments?	.19**			.20***							
d) have flexible time schedules?	.35***		-.08*	.32***		-.21**	.34***			.27***	
e) have a homeroom or group advisory period?			.12***		.15*					.13*	
f) use an extra "subject period" approach to remediation?	-.22***			.16**		.21**				.13*	
g) use minimum competency tests to determine promotion to high school?	-.17*	.20**					-.23***			.14*	
h) use mixed grade-grouping in academic classes?		-.16**		.23***			-.16**	.16*	.16**		
i) have extra-curricular or activity periods for all students?									.18**	.24***	.14*
j)have exploratory or minicourses for all students?					.17**	.20***		.30***	.35***	a	
k) have a common academic curriculum for all students in the same grade?										-.17*	
Adj R^2 for "control variables" model [b]	.13	.14	.08	.26	.24	.21	.18	.07	.08	.06	.08
Adj R^2 for "control variables + significant practices" model [c]	.16	.15	.10	.32	.28	.24	.22	.22	.14	.14	.08

Note: Table entries are Δ coefficients from the "control variables and significant practices model" that express differences between schools that use and schools that do not use specific middle grades practices.

[a] "Have exploratory or minicourses for all students," was not included as predicator of the percentage of students receiving minicourses because of the substantive overlap between these two variables.

[b] Model includes only the five control variables: Type of student population, grade organization, grade enrollment, region, and urbanicity.

c Model includes the five control variables plus practices that are significant predictors of course-taking opportunities in that subject.

*p < .05 **p < .01 ***p < .001

Table 8

Differences in the Probability That Selected Remedial Activities are Offered in Advantaged, Regular, and Disadvantaged Schools

Remedial Activity	Adv – Disadv	Reg – Disadv
Extra work or homework by classroom teacher	.14**	.10*
Pull-out program in reading or English	.09	.08*
Pull-out program in math	.00	.04
Extra subject period instead of elective or exploratory course	.16***	.07*
After-school or before-school classes or coaching sessions	.17***	.06
Saturday classes	-.01	-.01
Summer school	.00	.04

Note. Table entries indicate the estimated difference in probability of offering a given remedial activity to students who fall behind or learn more slowly in advantaged or regular schools versus disadvantaged schools. These estimates are from linear probability models using Goldberger's (1964) weighted least squares approach to the analysis of dichotomous dependent variables. The analyses control for the effects of 4 other factors (grade organization, grade enrollment, region, and urbanicity); the estimates describe the effects of being an advantaged or regular school that are independent of or in addition to these other factors.

*p < .05 **p < .01 ***p < .001